

PRINTERS & SCANNERS

FAQ

Q Can I scan directly to a USB flash drive as well as print from one?

A The main advantage of direct USB scanning is that you don't need the MFP connected to a computer in order to use it. This is useful if you have to make a scan in a hurry, but for most purposes the flexibility of scanning via your PC will give you better results.

While many MFPs allow you to print files directly from a USB flash drive, only a few also offer the option of scanning directly to a USB drive. It's usually the case that there will be fewer options available than if you were using the scanner driver on your PC.

Some printers will restrict you to a single file type (often a compressed JPEG), while others give you the option of selecting from several file types and resolutions, including high-quality TIFF files. For this reason, it is usually best to scan using a PC.

Kat Orphanides

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EPSON Stylus DX4400

★★★

£51 inc VAT

The DX4400 is an entry-level inkjet multifunction peripheral (MFP). Its plain case is very simple and doesn't include a colour screen, an automatic document feeder or even a memory card reader, which is supplied with the similarly priced Stylus DX5050 (reviewed in *Labs, Shopper* August 2007).

The design is typical of the current Stylus range, but with only five buttons and three indicator LEDs the controls are minimal. Although they aren't particularly difficult to interpret and use, this still makes it harder to use than an MFP with a screen.

We were disappointed by the print quality and speed, particularly when printing text. At Draft quality our prints were faint and extremely difficult to read. At the default Text setting, our documents were readable, but the quality was still poor. Print speed was reasonable at 13.6 pages per minute (ppm), but the tops of characters on some lines failed to print, and text was poorly defined. The Text & Image setting produced dense text without too much spidering or fuzziness at the edges, but it printed pages at just 2.4ppm. We used the same setting for our mixed colour print test, and it produced satisfactory results at a speed of 1.5ppm, although large blocks of colour showed slight graining.

Like many Epson printers, the DX4400 is significantly better at photo printing than at text. Our 6x4in prints in particular were sharp and clear, without any visible graininess or banding. However, yellow tones appeared to be too intense in all our photos. Our pictures were also slow to print, with six 6x4in photographs taking just over 34 minutes.



Print head alignment is a tedious process that involves selecting the best-quality result from a group of colour bars. This was rather hit and miss, and it took a few attempts to get the heads correctly aligned. This reduced striping and banding to a small degree, but didn't have much effect on the overall print quality.

The scanner performed well, with bright, accurate colours and no unwanted visual artefacts, and the scanner driver offered more control over the process than most. Scan times weren't particularly fast, at 45 seconds for our 300dpi A4 document and 40 seconds for our 6x4in photo at 600x1,200dpi.

The copier function offers basic enlargement and reduction, but without a screen or an automatic document feeder, it's suitable only for occasional light use. It's also quite slow, taking 46 seconds to copy an A4 mono document and 52 seconds for a colour one. The DX4400 uses four colour cartridges, with replacements available for a fairly economical £7 each.

Although the DX4400 is cheap, it is let down by its lack of features, painfully slow print speeds and poor-quality text printing. Canon's PIXMA MP160 ('Also Consider...', page 34) is a better choice.

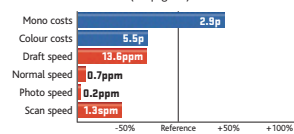
Kat Orphanides

SUMMARY

- ✓ Economical to buy and run
- ✗ Slow scan and print speeds
- ✗ Yellow tone on photo prints

COLOUR INKJET MFP 5,760x1,440dpi print resolution, 600x1,200dpi scan resolution, USB Hi-Speed interface
PART CODE C11C688301
SUPPLIER www.scan.co.uk
DETAILS www.epson-europe.com

PERFORMANCE (see page 62)



Also consider...

SAMSUNG ML-2510

★★★★★

£58 inc VAT



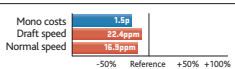
This grey laser printer may look a little drab, but



it's easy to set up and quick to install. It has a 250-sheet covered input tray and a single-sheet multipurpose feed slot, but it crumples envelopes.

The ML-2510 peaked at 22.7ppm when printing text, which is impressive for such an affordable printer. It's also cheap to run, with a cost per page of around 1.5p, yet produces high-quality text and mono graphics. It's a great compact budget mono laser printer.

MONO LASER PRINTER
1,200x600dpi resolution, 24ppm maximum speed, parallel and USB Hi-Speed interfaces
PART CODE ML-2510
SUPPLIER www.printerland.co.uk
DETAILS www.samsung.co.uk
✓ Fast; affordable to buy and run; good print quality
FULL REVIEW Oct 2006



EPSON Perfection V100 Photo

★★★★★

£62 inc VAT



The Perfection V100 is a bargain. It



can handle negatives and slides, as well as traditional printed materials. The TWAIN driver can break up a strip of negatives or 35mm slides into selectable thumbnails, so it's quick to get all your old media on to a PC.

Quality of scans for all media is excellent, and colours were reproduced faithfully. With a quick scan speed, too, it's almost perfect. If you're looking for good all-round scanning performance, this is the model to buy.

CCD FLATBED SCANNER
3,200x9,600dpi optical resolution, 48-bit colour output, USB Hi-Speed interface
PART CODE B11B184072
SUPPLIER www.scan.co.uk
DETAILS www.epson.co.uk
✓ Affordable; excellent quality
✗ Fiddly transparency adaptor
FULL REVIEW Sep 2007

SAMSUNG CLX-2160N



£293 inc VAT

Samsung claims that its CLX-2160N is the smallest colour laser MFP available. With a footprint of just 413x353mm, it's certainly compact. Despite its size, though, it includes a 150-sheet paper cartridge and an output tray with a capacity of 100 sheets.

The CLX-2160N costs little more than a dedicated colour laser printer, but it includes a network port as well as a USB Hi-Speed port. Full control of the scanner is available only via a USB connection, although you can scan directly to a USB storage device plugged into the MFP's dedicated USB port.

The CLX-2160N was easy to set up. It comes with drivers for Windows Me, XP and Vista, Mac OS X 10.3 upwards and several Linux distributions, including recent versions of Red Hat/Fedora and SUSE.

The printer's mono and colour print speeds weren't particularly fast for a laser, but they were close to the printer's rated speeds of 16ppm for mono pages and 4ppm for colour. Mono text was sharp, dark and well-defined even at draft quality. Greyscale reproduction was clear and accurately captured fine gradations of shading. Print quality on solid blocks of colour was rich and intense.

Photos were printed quickly, but the quality wasn't very good. The CLX-2160N produced dense, high-contrast images, but

these were marred by a slight pink tone, which was particularly visible on lighter colours. Our high-resolution photo print test produced images with visible graininess, particularly in light areas, and the text from our mixed-colour print test wasn't as sharp as we would have liked.

The CLX-2160N does reasonably well as a standalone copier. It produced a mono copy in less than 17 seconds and a colour copy in 43 seconds. Copy quality was sharp and accurate, particularly on colour copies, but mono text and image reproduction was a little too dark, although it was still clear.

Scanning proved somewhat problematic when we connected over a network. We were unable to control the scanner directly from our

graphics program and had to use the Samsung controller software to specify a program to scan to. It was then possible to perform the scan using the MFP's own controls, outputting to our chosen program. When we used the USB connection, we experienced no such problem.

The scanner's colour reproduction is excellent. Both white and black tones were scanned without acquiring any unusual colour tint. Our only complaint was that high-resolution photo scans produced images with visible grain at full magnification. Scan speeds are fast, at 23



seconds for a 300x300dpi A4 scan, and just under 19 seconds for a 600x600dpi 8x6in photo scan. With a maximum optical scan resolution of 1,200 x 600dpi, this MFP is suitable only for office-based tasks, as high-resolution scanning is not possible.

Toner cartridges are easy to install and replace. The CLX-2160N comes with a black starter cartridge with enough toner for around 1,500 pages, and colour cartridges with enough toner for around 700 pages.

The cost of colour printing is quite expensive, but mono costs are very competitive. However, you need to consider the cost of the imaging unit (£99), which lasts for around 20,000 mono pages and 12,500 colour pages. The waste toner container (£32) also needs replacing every 5,000 mono pages and 1,250 colour pages.

The CLX-2160N is cheap to buy, performs most tasks well and produces results that are good enough for most office uses. For light use it's great value, but if you print a lot of pages the cost of the imaging unit and waste toner container make it expensive to run.

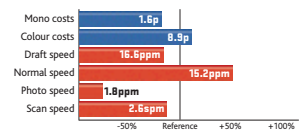
Kat Orphanides

SUMMARY

- ✓ Cheap to buy
- ✓ Good-quality text and graphics
- ✗ Pink tint on mixed colour prints

COLOUR LASER MFP 2,400x600dpi print resolution, 16ppm mono/4ppm colour maximum speed, 600x1,200dpi scan resolution, USB Hi-Speed, PictBridge USB and 10/100 Ethernet interfaces
PART CODE CLX-2160N/XEU
SUPPLIER www.dabs.com
DETAILS www.samsung.com

PERFORMANCE (see page 62)



CANON PIXMA MP510



£62 inc VAT



The MP510 has excellent print quality,

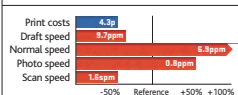
particularly when reproducing text documents, but it's also quick and cheap to print. The scanner isn't quite as good as the printer, but it's good enough for occasional jobs.

The MP510 was the fastest MFP for photo printing in our recent *Labs* test, and is great value.



COLOUR INKJET MFP

4,800x1,200dpi print resolution, 25ppm mono/17ppm colour maximum speed, 1,200x2,400dpi scan resolution, USB Hi-Speed, PictBridge USB, IrDA infrared interfaces
PART CODE 1450B019AA
SUPPLIER www.pixmania.co.uk
DETAILS www.canon.co.uk
✓ Superb text quality; low running costs
✗ Scans are slightly soft
FULL REVIEW Aug 2007



KONICA MINOLTA Magicolor 2500W



£174 inc VAT



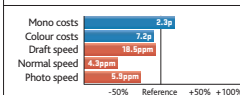
The Magicolor 2500W is one of the cheapest colour laser printers, but it gets the essentials right.

It's compact, easy to set up and use, and produces good-quality prints. With basic paper handling and no scope for upgrades, it isn't suitable for demanding users, but home users will find it great value.



COLOUR LASER PRINTER

600x600dpi resolution, 20ppm mono/5ppm colour maximum speed, USB Hi-Speed interface
PART CODE A00V021
SUPPLIER www.office-online.co.uk
DETAILS www.konicaminolta.com
✓ Affordable, good print quality
✗ Basic paper handling
FULL REVIEW May 2007



HP Photosmart D7160

PRICE CUT!



£65 inc VAT

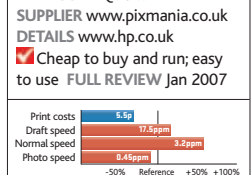


HP's Photosmart D7160 costs less now than it did when it won our Best Buy award. It doesn't produce the best photo quality we've seen, but it's fast, affordable and easy to use. It's equally happy reeling off A4 pages of high-quality text or printing photos directly from a memory card.

We don't think it's worth paying extra for the touch-screen-equipped D7360 when the D7160 is this good.



A4 PHOTO INKJET Six-colour inkjet, 4,800x1,200dpi resolution, USB Hi-Speed and PictBridge USB interfaces
PART CODE Q7047B
SUPPLIER www.pixmania.co.uk
DETAILS www.hp.co.uk
✓ Cheap to buy and run; easy to use
FULL REVIEW Jan 2007



BROTHER DCP-540CN

★★★

£98 inc VAT

Primarily aimed at home users, Brother's DCP-540CN is an inkjet MFP with a network port, so it's easy to share on a home network. Setup is fairly easy, with instructions on the 2in colour screen to direct you to the ink cartridge slots and the USB and Ethernet ports, unusually located under the scanner. The printer supports a range of media sources, including PictBridge and a selection of digital camera memory cards.

There are some interesting design elements, but the general build quality feels rather flimsy. A removable paper tray makes it easy to load A4 paper, but we found it hard to align 6x4in photo paper correctly in the specialised sliding photo tray.

Unfortunately, the DCP-540CN is let down by its poor print speed and text quality. High-resolution printing is painfully slow at 1.5 pages per minute, while lower-quality modes produce pale text with poor character definition.

The DCP-540CN performed well in our mixed colour printing test and produced good-quality colour print-outs even at its mid-range 'normal' resolution. Dark tones were somewhat muted at all but the highest resolution, though, and black text suffered from poorly defined edges.

Photo printing quality is acceptable, with decent contrast. However, the colour looks rather flat and slightly undersaturated, and the resolution appears to be too low on areas of light colour. It produced six 6x4in photos in



just under 14 minutes, but all of these were misaligned to a greater or lesser extent, with visible white edges even on borderless prints.

The scanner is unremarkable and rather slow, taking over a minute for a 300x300dpi A4 scan, and two minutes, 41 seconds for a 1,200x1,200dpi photo scan. Our colour test showed a slight blue cast. The specs claim a maximum optical scanning resolution of 600x2,400dpi, but the driver only let us scan at resolutions of up to 600x1,200dpi.

The DCP-540CN performed reasonably well as a copier, producing a mono copy in 35 seconds and a colour copy in 40 seconds. Mono copies had a slightly gritty appearance, and text reproduction in general was slightly fuzzy. It also includes an automated document feed (ADF).

Overall, the DCP-540CN is one of the more expensive entry-level inkjet MFPs we've seen. Its colour printing is good, but it is let down by slow print speeds for high-quality text, persistent alignment issues in photo printing, and imperfect scanner performance. Canon's PIXMA MP510 (see 'Also Consider...', page 33) is faster, cheaper, has lower running costs and produces better-quality prints, making it the better buy.

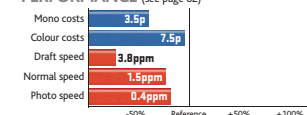
Kat Orphanides

SUMMARY

- ✓ Good quality colour printing
- ✗ Slow text printing
- ✗ Problems with 6x4in photo prints

FOUR-COLOUR INKJET MFP
6,000x1,200dpi maximum print resolution,
600x2,400dpi maximum scan resolution,
USB Hi-Speed, PictBridge USB, 10/100
Ethernet interfaces
PART CODE DCP540CNU1
SUPPLIER www.dabs.com
DETAILS www.brother.com

PERFORMANCE (see page 62)



CHOOSING A...

Multi Function Peripheral

Follow the steps to find your ideal specs

PRINT TECHNOLOGY: Inkjet
PRINT RESOLUTION: 4,800x1,200dpi
SCAN RESOLUTION: 600x2,400dpi
INTERFACES: USB
EXTRA:

Recommended minimum in grey

A multifunction peripheral combines a printer and scanner into a single compact unit, and also provides copying and fax facilities. This saves desk space and also money, compared with buying two or more separate devices.

1 Basic models cost as little as £40 including VAT, with specifications similar to those shown in grey above. These are OK if funds and space are tight, but quality and speed will be basic, and copying and faxing may not be possible without the help of the PC.

2 Spending more invariably gives you improved speed and image quality. These improvements aren't directly proportional to price, though, so read our reviews for details. Remember that running costs can outweigh the price of the unit.

3 Sheet-fed scanners handle multiple pages but flatbeds tend to give better image quality. Cheaper models make you choose one or the other, while pricier units combine both features.

4 If you'll be using the printer regularly, consider a laser rather than an inkjet model. These benefit from improved print speeds and lower running costs, and cost from around £120 including VAT. You'll need to spend a lot more for a colour laser-based machine.

5 To make the most of the standalone functions, you'll want decent front-panel controls. These can vary from a single copy button to something resembling a dedicated copier. If fax is important, then you need to check the device has a built-in modem.

6 Other useful extras to consider are memory card slots, duplexing units for the printer and/or scanner, additional paper trays and an Ethernet port to connect the device to a network.

Also consider...

CANON PIXMA iP4300

★★★★★

£50 inc VAT



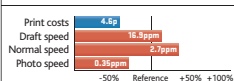
If you need a budget printer, Canon's

PIXMA iP4300 shows that you don't need to compromise on quality. It has two paper trays, and can print on coated CDs or both sides of each sheet

of paper. It's fast to produce text, colour graphics and photos. Print quality is high, with no trace of graininess, though photos are a little bit oversaturated. Best of all, it has very low running costs.



INKJET PRINTER Five-colour inkjet, 9,600x2,400dpi maximum resolution, USB and PictBridge USB interfaces
PART CODE 1438B008AA
SUPPLIER www.redsave.co.uk
DETAILS www.canon.co.uk
✓ Inexpensive; fast; flexible; stylish; high-quality results
FULL REVIEW Dec 2006



CANON PIXMA MP160

★★★★★

£35 inc VAT



The PIXMA MP160 costs less than many

budget inkjet printers, and it can also make good-quality scans and copies. It's compact and attractive and not too tricky to set up. Unusually for such an affordable printer, it has low running costs if you use Canon's high-capacity ink cartridges. It's great value if you just want a basic multifunction peripheral.



FOUR-COLOUR INKJET MFP
4,800x1,200dpi print resolution,
600x1,200dpi scan resolution,
USB Hi-Speed and PictBridge
USB interfaces
PART CODE 1447B008AA
SUPPLIER www.inkraider.co.uk
DETAILS www.canon.co.uk
✓ Affordable; good results
✗ No card reader
FULL REVIEW Jan 2007

